

U.S. Patent Application Serial No. 10/034,097
Amendment Under 37 C.F.R. §1.111 dated September 25, 2003
Reply to First Rejection of **June 25, 2003**

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REMARKS

Claims 1-4 remain pending in the present application. The rejections set forth in the Office Action are respectfully traversed below.

Information Disclosure Statement

The Examiner is respectfully requested to consider the reference cited in the Information Disclosure Statement filed with the present application on January 3, 2002 (copy enclosed, with USPTO stamped postcard showing receipt on same day), and to return the accompanying Form PTO-1449 initialed to indicate the Examiner's consideration of the listed reference (JP 3-035953).

Rejections under 35 USC § 112, Second Paragraph

Claims 2 and 4 were rejected under 35 USC § 112, second paragraph. Claims 2 and 4 were amended to overcome these rejections.

For example purposes only, the following portions of claims 2 and 4 are reproduced below with reference numbers to sample corresponding features described in the specification, in response to the Examiner's questions regarding claimed features of claims 2 and 4. This is not intended to limit the full scope of the claimed features as recited in claims 2 and 4.

The main spindle (e.g., 20) is located on the same side (e.g., AREA B) as the spindle tool holder (e.g., 2a) of the changer arm (e.g., 2) with respect to a plane including a pivot axis (e.g., O₁) of the changer arm (e.g., 2) and the tool changing position (e.g., O₂) prior to the movement to the tool

changing position (e.g., O_2), the predetermined preliminary pivot angle (e.g., θ_2) is smaller than the predetermined preliminary pivot angle (e.g., θ_1) when the main spindle (e.g., 20) is located opposite (e.g., AREA A) from the spindle tool holder (e.g., 2a) with respect to the plane prior to the movement to the tool changing position (e.g., O_2).

Rejections under 35 USC § 102

Claims 1-4 were rejected under 35 USC § 102 over **Kielma et al.** (USP 4,306,350). The Office Action stated:

“The method comprise the steps of preliminarily pivoting the changer arm by a predetermined angle when the main spindle is moved to the tool changing position (fig. 1); further pivoting the changer arm so as to move the spindle tool holder of the changer arm to the tool changing position after the main spindle reaches the tool changing position and causing the spindle tool holder of the changer arm to hold the tool attached to the main spindle (fig.1); wherein the main spindle is located on the same side as the spindle tool holder of the changer arm with respect to a plane including a pivot axis of the changer arm and the tool changing position prior to the movement to the tool changing position (fig. 1), the predetermined preliminary pivot angle is smaller than the predetermined preliminary pivot angle when the main spindle is located opposite from the spindle tool holder with respect to the plane prior to the movement of the tool changing position (fig. 1).”

However, it is submitted that the cited prior art does not teach or suggest all the features recited in the present claimed invention. For instance, the cited prior art does not teach or suggest the following claimed features of independent claims 1 and 3 (with references to sample corresponding features described in the present specification and drawings, for example purposes only): preliminarily pivoting the changer arm (e.g., 2) by a predetermined angle (e.g., θ_1 or θ_2) while the main spindle (e.g., 20) is moved to the tool changing position (e.g., O_2); further pivoting the changer arm so as to move the spindle tool holder (e.g., 2a) of the changer arm to the tool changing position after the main spindle reaches the tool changing position and causing the spindle tool holder of the changer arm to hold the tool attached to the main spindle. These claimed features are not disclosed in fig. 1 of **Kielma**.

Also, fig. 1 of **Kielma** does not teach or suggest any predetermined preliminary pivot angle that is smaller than the predetermined preliminary pivot angle when the main spindle is located opposite from the spindle tool holder with respect to the plane prior to the movement of the tool changing position. In particular, each of the tool change arm assemblies 96A, 96B of **Kielma** is rotated through 90° by one action of the rack 369, 378 (see, e.g., col. 13 lines 9-39). Therefore, the reliance on fig. 1 of **Kielma** for this feature, as set forth in the Office Action, is incorrect.

Furthermore, with regard to col.14 lines 53-59 of **Kielma**:

“Tool 366 in FIG. 19 is in spindle 82 while tool 368 is in tilt unit 92. To exchange tools 366 and 368, upright 66, saddle 52, and spindlehead 72 are moved by the N.C. axis servo systems to the positions shown in FIGS. 1 and 2. Tool change arm 298 is

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then rotated 90° counterclockwise from the position shown in FIGS. 1 and 19 to the position shown in FIG. 20.”

Namely, N.C. axis servo systems drive upright 66, saddle 52, and spindlehead 72. The N.C. axis servo systems do not drive the two tool change arm assemblies 96A, 96B. Instead, tool change arm assemblies 96A, 96B are driven by hydraulic piston and cylinder mechanism 371, 380 (see, e.g., col. 13 lines 9-39). Therefore, the reliance on col.14 lines 53-59 of **Kielma** for this feature, as set forth in the Office Action, is incorrect.

For at least the reasons above, the present claimed invention patentably distinguishes over the prior art. If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosures: Information Disclosure Statement dated January 3, 2002;
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